GEOGRAPHIC NEWS BULLETINS

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HUTS OF NATIVE MINERS IN ELIZABETHVILLE, BELGIAN CONGO

During the World War, Elizabethville enjoyed great prosperity on account of the copper mines in the vicinity, which employed thousands of natives. These huts have corrugated iron walls and thatched roofs (See Bulletin No. 2).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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Italy's Most Recent Earthquake Zone

IN ITS most most recent earthquake, late in October, Italy was shaken along the upper Adriatic coast. If the homely but familiar simile of the "Italian boot" is kept in mind, the comparative situations of the earthquake of early July and the most recent seismic disturbance can be quickly grasped. The July quake was on the lower "shin"; the most recent one was on the upper "calf." But here the anatomical similes become badly mixed: Ancona, the town from which most of the news of the disaster came, means "elbow," and is so named because of a sharp bend in the coast line at the site of the city.

Heaviest Shocks Along Coast

Unlike the earthquake of last summer, when the greatest damage occurred inland, the force of the later disturbance was concentrated along the coast, the greatest destruction being experienced in the group of towns that are strung along the shore of the Adriatic from Ravenna in the north to a point about 30 miles south of Ancona.

Ravenna, which originated in a broad lagoon like Venice, now, thanks to the silt carried down by Italian torrents, lies near the seaward edge of a plain that extends inland 35 miles before it reaches the foothills of the Apennine Mountains. South of Ravenna this coastal plain rapidly narrows, and at Rimini, also in the edge of the earthquake region, is barely 10 miles wide. A few miles south of Rimini, spurs of the Apennines reach the sea. This physical structure—mountain spurs reaching the sea with relatively narrow valleys between the spurs—continues on down the east coast of Italy for more than 200 miles. It is the outstanding feature of the region in which the earthquake was most severe.

Monuments Sketch History

Ancona, largest city in the shaken region, is situated between two promontories. This location, with the help of engineering works begun by the Romans before the Christian era, gives the city an excellent harbor. It is the busiest Italian east-coast port between Venice on the north and Brindisi, near the "Heel" of the peninsula. Ancona's two principal monuments sketch two important chapters in its history. At the land end of one of its piers is a triumphal arch to Trajan, his wife, and his sister, erected by the Roman Senate in A. D. 115 in gratitude for the improvement of the harbor. Not far away is a second triumphal arch marking similar work by Pope Clement XII sixteen centuries later. The port had become Papal territory in 1532 and, except for an interim under French and Austrian control between 1796 and 1815, remained in the hands of the Popes until 1860. The city now has a population approximately 54,000.

Most of the towns hardest hit by the earth tremors are sea bathing resorts in the summer, and it was to the bath houses in several of the communities that the injured were first taken. These wooden structures were less likely to be injured by subsequent quakes than the dwellings and hospitals built of masonry. Rimini is probably the most popular bathing resort in Italy next to Venice, but even at Pesaro and Fano sea bathing can be classed as a local industry during the summer months.

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A CRUSADER'S CASTLE AT TRIPOLI

It was in such strongholds as this that knights from Europe found safety during the two centuries of their struggle to hold the Holy Land from the Saracens. This castle at Tripoli is one of the best preserved buildings erected during the Christian occupation of Palestine and the Syrian coast (See Bulletin No. 5).

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Katanga: A Land of Calico Money

BRITISH and Belgian officials who deal with the colonial problems of their two nations in Central and East Africa met in Brussels recently to consider the practicability of connecting the railways of British East Africa and the Belgian Congo. Such a connection would benefit the economic life of the two colonial regions in many ways. One of its most important effects would be to furnish an outlet to the Indian Ocean for the rich province of Katanga, which occupies the southeastern corner of Congo.

Wide Range to Civilization

Civilization has a wide range in this mid-continent colony. Motor roads crisscross a region where campers still build fires by night to ward off the lions, and where native savages chant, "White man, white man, we'll dance tomorrow with your head on the end of a spear."

Bantu tribesmen do business with calico money. Elizabethville, the colony's capital, has both a Belgian and an English bank, seven hotels, five hospitals, and its streets, avenues and boulevard would do credit to a European city.

Further railroad building is in keeping with the excellent communications rapidly established in an area not long ago called Africa's most inaccessible part. The Congo Colony has the natural advantage of the 10,000 miles of navigable waters afforded by the Congo River and its tributaries.

Bicycle Vehicle of Pioneers

Steel rails and macadam highways supplement these water routes, but it is to the humble bicycle that Belgian Congo owes its initial development. The tsetse fly was an effective bar to the domestic animals, hence pioneer whites first carved out wheel tracks instead of bridle paths.

The present rail outlet from the Katanga interior is the line from Bukama to Cape Town and to Beira, on the east coast. Connection with the railways of British East Africa would give the country its first rail outlet to the east.

This possible new outlet has a world interest as any one realizes who has watched Congo's river craft laden with palm oil, coconuts, ivory, rubber and sugar.

Has Famous Copper Belt

Once the Congo River bed was an inland sea, but even then the Katanga plateau was high and dry. To-day much of Katanga, which is as large as California and South Carolina together, is free from the tsetse fly, hence cattle thrive there. The soil is fertile. However, Katanga's chief asset in the eyes of modern states is her mines, particularly her famous copper belt, which contains one of the most extensive beds of copper ore known to exist. Tin, iron and coal also are mined and gold is found.

Even in modern Elizabethville representatives are in evidence of the two million or more Bantu natives, who range from jungle savages and the forest pygmies to the Swahili language group whose literature has been the subject of close study. The ethnologist holds the Congo's chief riches to be in natives whose tribes, languages and development stages are exceptionally diverse.

To the layman on a street corner of Katanga's capital the passing show of natives has the interest of a museum—the man who wears ivory rings on his fingers, the woman with a metal circlet in her nose, the people who file their front teeth to a point, some who subsist on arrowroot and others who hunt game

Fishing Town Center of Quake

Senigallia, where most of the deaths occurred, is also on the seacoast and is primarily a fishing town. The center of the earthquake disturbance is believed to have been closer to this community of 12,400 inhabitants than to any of the other sizable towns.

Toward the northern edge of the earthquake area, but not included among the places listed as suffering destruction to buildings or loss of life, is the world's smallest republic, San Marino. It lies only 40 miles from Senigallia, and 10 miles from the coast near Rimini. The little republic, only 38 square miles in extent, has its capital and chief town (also named San Marino) perched on Monte Titano, 2,000 feet above the Adriatic. The tiny state is entirely surrounded by Italian territory.

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FAIR DAY IN THE PIAZZA BELZOPPI: SAN MARINO

Fair days in the little Republic present a kaleidoscope of color. Gayly kerchiefed peasant women, farmers, landowners, stock-breeders, boys and girls mingle in a democratic throng. San Marino is at the northern edge of the area shaken by the recent earthquake on the eastern coast of Italy. The tiny state is entirely surrounded by Italian territory (See Bulletin No. 1).

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Weihaiwei: Chinese Gibraltar Relinquished by Great Britain

WITH British warships firing salutes, Chinese and British marines parading, and the flags of the two nations flying, a representative of Great Britain formally handed over Weihaiwei to a Chinese Administrator a few weeks ago. The British flag had been flying over the little patch of China for thirty-three years.

Weihaiwei was truly Britain's Gibraltar of North China. Like Gibraltar, its strategic importance was great; its trade importance zero.

Its position on the tip end of Shantung Peninsula makes Weihaiwei a sentry box to the Gulf of Chihli, which is the Mediterranean of North China. Across the narrow strait from Weihaiwei is Dairen, where the Japanese have built a populous important city out of Russia's Port Arthur.

Guards North China's Sea Gate

All the trade of North China passes through this sea gate guarded by Weihaiwei and Dairen. Tientsin, port for Peiping (Peking), and the largest city within the Gulf of Chihli, enjoys a heavy maritime trade.

It is really a patch of pongee land which Great Britain has returned to China. To most persons, no doubt, silk means a fiber spun by domesticated silkworms fed on mulberry leaves. But the silk industry is different in the Weihaiwei neighborhood and other parts of Shantung. The pongee—by which name their silk is known—unbleached and in its natural color, is the product not of domestic but of "wild" silkworms. And they do not eat mulberry leaves, but browse, so to speak, on the leaves of the scrub oak trees of the Shantung hills. Their cocoons are gathered in large quantities, and so the otherwise waste hill lands are made to yield a relatively rich harvest.

Western Powers Took Patches of China

The years 1897 and 1898 saw the high watermark of territorial acquisition in China by foreign powers, and Great Britain felt impelled to take a part in the procedure, she has explained, by way of self-protection.

Germany started the scramble in November, 1897, by seizing the ill-fated Kiaochow Bay (from which she was driven by Japan during the World War), and by forcing China to grant her a ninety-nine-year lease on the surrounding territory. Almost immediately Russia forced from China a twenty-five-year lease on Port Arthur, at the southern tip of Manchuria. Following this, Great Britain negotiated for control of Weihaiwei, exactly midway between the German and Russian ports. She made her reasons for the move plain by setting out in the agreement that the lease was to run for twenty-five years or "so long as Russia occupies Port Arthur." The lease was therefore nominally for twenty-five years.

Just as the Bay of Weihaiwei is valuable in strategic position, so it is valuable physically, for its harbor is deep and sheltered. But in the sphere of geography that lies outside naval considerations the place is of small account. Germany's and Japan's Tsingtao on Kiaochow Bay has a rich hinterland behind it and has become rather a prosperous port. But the low, sandy coast lands and rolling hills about Weihaiwei are not known to contain minerals, and they fall short of constituting a Garden of Eden agriculturally. The region's two bids for trade are peanuts, of which considerable quantities are produced in the valleys, and pongee silk.

with poisoned arrows. For the expert these types have a deeper interest. Each is a chapter in the fascinating story of human progress.

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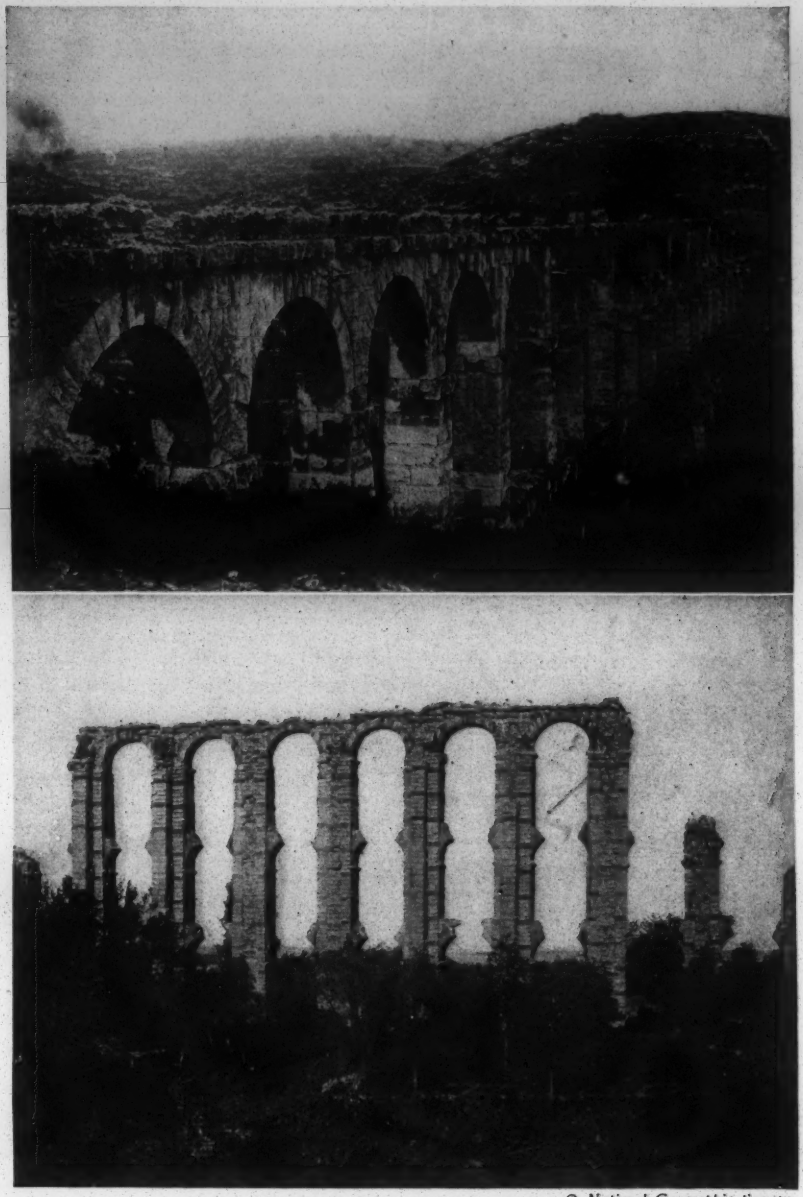

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RUINS OF ROMAN AQUEDUCTS

The upper photograph shows the remains of the great structure at Tarragona, chief city of Roman Spain. Below is all that is left of the aqueduct at Merida, Spain. Wherever cities grew under Roman civilization they were given large supplies of water, often by means of costly works of masonry that extended many miles across country (See Bulletin No. 4).

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Water: Essential Ingredient in City Building

THE unusual drought of the past summer in the United States which made it necessary for some cities to put their citizens on "water rations" emphasizes the dependence of cities on an abundance of water.

So long as men live in villages the problem of a supply of water for drinking, and other household purposes usually can be solved easily. But when the village grows into a town, and the town into a city, the furnishing of an adequate amount of water becomes increasingly difficult. The history of the growth of great cities in all parts of the world has in large part been the history of the reaching out farther and farther for a greater supply of this all-important fluid.

Water Supply Is Age-Old Problem

It is not a modern problem. Six thousand years ago the cities that grew up in the valleys of the Tigris and Euphrates and the Nile were faced with the same need for a dependable water supply. In fact, they grew where they did because water was there easily available. Because they were situated on level valley lands, these earliest cities of which we know could bring in water in canals; and from these the populace dipped it as they needed it.

Phoenicians were probably the first to construct what may be called waterworks. They sank a series of shafts and connected the bottoms by tunnels, thus leading a stream of water underground from upland sources to their coastal cities. Impervious strata were chosen in which to dig the tunnels, and in this way loss by seepage and evaporation was avoided. Such underground water systems are still made use of in the Near East, notably in Persia, where all the larger cities obtain their water from such hidden streams.

The early Greeks borrowed the shaft-tunnel system from Syria, and conducted water to a number of their cities in this way as well as by surface canals.

Most of these earliest city water systems were for the purpose of furnishing a necessity—the water which was essential for drinking and cooking and cleaning. There were public baths in Greek cities, but apparently it was not until Rome had grown into a great city with a marked concentration of population that the idea came to supply to such a big population center a superabundance of water—not only enough to meet the urgent necessities of the populace, but also a large surplus to increase their comfort and pleasure. Some of the greatest engineering accomplishments of the Romans were in the construction of their aqueducts. The ruins of a number of these great works, stalking across valleys and lowlands near Rome on arches from 50 to 100 or more feet high, are among the most striking remains of the ancient Roman civilization.

Rome Reached Out 60 Miles for Water

The earliest of the Roman aqueducts had its source of water supply less than 7 miles from the city. But as the population grew, and more and more water was required, new aqueducts were built extending 11, 20, 40 and even 61 miles into the country. A popular idea that these aqueduct channels were all carried far above ground is incorrect. Long sections of most of the channels were underground, and in some cases high hills were pierced for them by long, deep tunnels.

Although Rome surpassed all earlier great cities in the abundance of its water supply, it did not go far beyond them in the matter of distribution. For the most part, the water for household use was fed to fountains and reservoirs from which it was necessary for the people or their servants to take it in jars. Supplies were also conducted to important public buildings, to the private homes of a few very wealthy families, and to the public baths.

The dwellers in the cities of medieval Europe, like those of many cities of the Near and Far East to-day, had water supplies far inferior to that of the Romans. Some of the outstanding exceptions were cities established as Roman colonies, in which the Roman-built aqueducts continued to function. The typical medieval city depended on wells, and on cisterns filled by rain-water drained from roofs. The water was often unclean and easily became contaminated. These polluted city water supplies played an important part in the occurrence of the devastating plagues that swept over European cities during the Middle Ages.

London began piping water into the city from outside sources as early as 1236, but it was supplied only to fountains and reservoirs. Few connections to individual homes were made before the eighteenth century, and it was not until well into the nineteenth century that this ultimate step in city water distribution took water into the dwellings of a large percentage

In returning the Weihaiwei leasehold to China, Great Britain has turned back a better region than she received. New plants and animals have been introduced, considerable areas of denuded land have been reforested, and good roads have been built. Weihaiwei has a favorable climate and during the thirty-three years of British occupancy has been used to a certain extent as a summer resort by Europeans from Hong Kong and the southern treaty ports.

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DENIZENS OF THE EQUATORIAL FOREST

Explorers are often surprised by the silence in the great African forests. They expect to find a noisy and entertaining animal life, but for long periods not a bird call or a monkey yell breaks the stillness (See Bulletin No. 2).

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Crusader Towns of the Syrian Coast

PLANS for economic development by the French in Syria call for the construction of a railway along the coast of the Mediterranean connecting Tripoli and Beirut. It was along this coast that the Crusaders fought the Saracens seven centuries and more ago.

In a communication to the National Geographic Society, Maynard Owen Williams tells of a trip he made through this historic region.

Enter Through Breach in Wall

"As one comes up to Tartous from the south, having left the ruins of Marathus behind and drawn a sort of coast circle around the shoreward side of Ruad, the most prominent feature of the landscape is a huge Crusader church bulking large above the town. When one has entered the church, through a small breach in the age-browned wall, the color of crumbling newspaper falling away from some treasure it enveloped, or of nut-brown mummy wrapping, he finds the interior pleasing in its grace. Time, however, has worn finger holes in the once rounded columns, and it resembles the workshop of a carnival committee or a pageant board because artless battlements, jig-sawed from thin lumber, fill one corner.

"The Crusader church stands alone between flat-roofed houses and the fertile plain, edged with spiny cactus. On the right forward corner there is a small tower, erected when there were plans of making a mosque of this vast barn of a building. But Tartous is small, and a mosque, like a cafe, is at its best when embellished with humans compacted together. So the church, no longer used as a church, is saved from the desecration of non-Christian worship and abandoned to the desecration of dirt.

Moat about Former Church

"In the walled town (the roadway from the south enters a hole hacked in Phoenician masonry coeval with Solomon's temple, perhaps) there is a Crusader's Hall, the outside of which runs along one side of the square. But search as I would, no matter how many Moslem women or village boys guided me about, I was not able to see the inside of this hall, now divided among many owners.

"A little farther on, its megalithic foundations sloping to the disused moat, there is a former church now a mosque, with a really fine minaret proclaiming its presence. Above the arched doorway a cross has given way to a sort of trefoil which disguises the effacement.

When Crusaders Sailed Home

"Tartous was the last place on the mainland to be held by the Christians, but it was from Ruad that the last of the Crusaders, giving up hope of Christianizing by the sword a land in which they had lived for two centuries, set sail for home. When the twentieth century fighters arrived to fight against the Turks and Germans, Ruad was occupied by the French, and to-day its central castle, dominating the low lying island and in turn dominated by a lighthouse, is the prison of political prisoners.

"Ruad stirs the imagination because, quarrying away its tiny coast line to construct a megalithic wall which dropped sheer to the surf, the Arvadians (the ancient city was Arvad) shut themselves into a place where, lacking a fleet, they

of the city's population. Until cast-iron and wrought-iron pipe could be made cheaply and in great quantities, the piping of water into large numbers of individual homes was out of the question. The earliest London water mains were of lead and wood. Most of the present London water supply is taken from the Thames not many miles above the city.

New York Uses Nearly a Billion Gallons a Day

New York, situated on a relatively small island, has had greater difficulty than London in obtaining an adequate water supply. Until 1842 the city depended on local wells and springs. If Manhattan's present supply came from the island's rainfall, a cloud bank more than 25 miles deep would have to discharge its water burden daily.

In the forties the Croton Aqueduct was constructed, bringing what was then an abundant quantity of water from a distance of 25 miles or more north of the city. Since that time the city has found it necessary to reach farther and farther to the north to tap additional sources.

Early in the twentieth century a great artificial subterranean river was constructed to flow for nearly 100 miles from the Catskill Mountains, under the Hudson River, and beneath the city, finally to bubble up into its network of distributing pipes. New York's combined water supply now constitutes the greatest city water system in the world. It furnishes to the inhabitants of Greater New York an average of nearly 900 million gallons a day.

Lake Shore Cities Have Simple System

Chicago obtains its water supply simply and economically. Tunnels have been extended under the bed of Lake Michigan for only 3 or 4 miles from shore, and through these great streams of lake water are pumped into the city. Similar systems supply Milwaukee, Cleveland, and Buffalo. St. Louis and New Orleans get their water supplies from the Mississippi River, and, because of the great amounts of mud carried in suspension, must make use of systems of settling tanks and must also treat the water chemically.

Los Angeles has had to reach out farther for its water than any other American city. It transports the greater part of its supply in a huge conduit for more than 250 miles, much of the distance across deserts. For the additional supply which the city will soon need it plans to reach even farther—300 miles east to the Colorado River.

The world's record for distance over which a large volume of water is piped for community use is held in western Australia by the three desert-surrounded, gold-mining towns: Kalgoorlie, Coolgardie, and Boulder. Five million gallons of water a day are pumped to these communities through 351 miles of pipe 33 inches in diameter.

Some Large Cities Get Water from Wells

Wells still play their part in furnishing water to large cities, but they are not the crude, shallow pits of the Middle Ages. Instead, they are shafts drilled to a depth of hundreds or perhaps a thousand or more feet; and from them, electric pumps lift millions of gallons of pure water daily. El Paso, Texas, a city of more than 117,000 population, and numerous smaller cities of the American West, as well as Memphis, Tennessee, and other cities near the Atlantic seaboard, obtain in this way an abundant water supply.

Other island cities besides Hong Kong are dependent on local rainfall to furnish their water. St. Thomas, in the Virgin Islands, has constructed a brick-paved watershed near the town to aid in the collection of clean water. A similar concrete-covered watershed occupies a prominent slope of the Rock of Gibraltar. In Key West, rain-water, drained from roofs into cisterns, makes up the main supply. As the city has grown, however, it has been necessary to ship in water by rail in tank cars from the mainland.

In a few arid coastal regions, the fresh water that can be collected from all sources is inadequate to meet the needs of the population, and in order to supplement the supply for towns it is necessary to distill sea water. Jidda, on the Red Sea, is a typical sun-baked town where drinking water is thus wrung from the sea. The condensing factory is one of the landmarks of the Jidda harbor.

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would starve; but sallying forth from there they dominated the mainland as far as the Orontes, including the Nosariyeh hills, now inhabited by descendants of several mystic sects."

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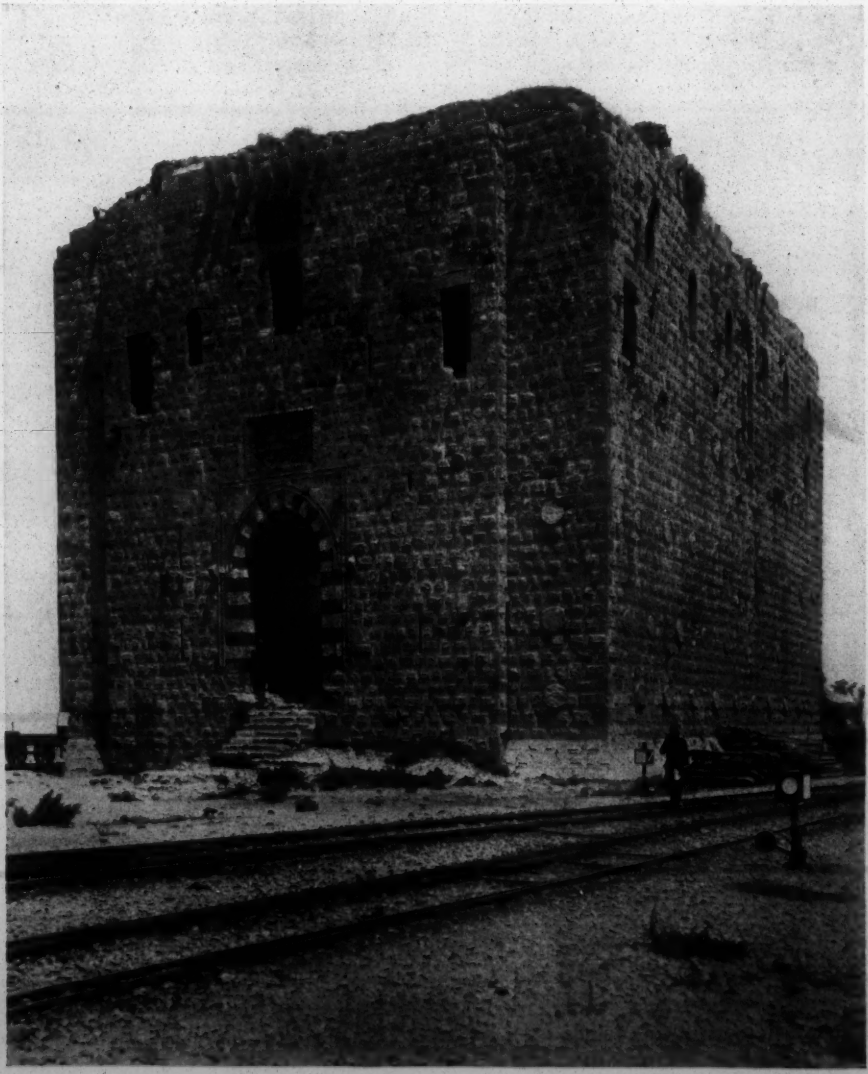

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BURJ ES SEBA AT TRIPOLI, A RELIC OF ANTIQUITY DOOMED TO DESTRUCTION, TO MAKE WAY FOR THE "IRON ROAD"

This fort was probably built about the year 1,000 A. D. by the garrison which owed allegiance to the Fatimite caliphs of Egypt, who treated the city with great favor and made it the headquarters of a trading fleet. Local tradition makes the builder Richard Coeur de Lion, but the Arabian style of architecture proves that it was not built by any of the Crusaders. Its Arabic name, Tower of the Lion, probably accounts for the tradition regarding Richard the Lion-hearted (See Bulletin No. 5).